



# Bayfield County Land & Water Conservation Dept.- Aquatic Invasive Species Project

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Thank you to our contributors!

Emma Wiermaa  
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## Ground Breaking Sea Lamprey Research happening at UW-Stevens Point Northern Aquaculture Demonstration Facility

New research is revealing the effect sea lampreys have on the 45-75% of Lake Trout that survive an attack, helping to preserve this important native Great Lakes species...

By Emma Wiermaa, Aquaculture Outreach Specialist

The University of Wisconsin Stevens Point operates a northern campus located in Red Cliff, WI known as the Northern Aquaculture Demonstration Facility (UWSP NADF). This state-of-the-art facility's mission is to promote public education and advance the discovery, dissemination and application of knowledge for sustainable aquaculture in a northern climate. The UWSP NADF is the only one of its kind in the Midwest and one of a handful in the nation.

The facility is involved in various research projects throughout the year working with private, state, federal, tribal and private

farms, hatcheries and organizations. This summer, the facility will be continuing the third year of a ground breaking research project which is helping to determine the effects of sublethal sea lamprey parasitism on lake trout. Principal investigators for the project are Cheryl Murphy, Michigan State University; Greg Fischer, UWSP NADF; Rick Goetz, National Oceanic and Atmospheric Administration Northwest Fisheries Science Center; and Shawn Sitar, Michigan Department of Natural Resources Marquette Fisheries Research Station. The project titled, "Comparing the sublethal effects of sea lamprey parasitism on long term reproduction, growth,

and recruitment of siscowet and lean lake trout" is funded by the Great Lakes Fisheries Commission. Greg Fischer, UWSP NADF Facility Operation Manager stated "Undertaking this extensive project which involves bringing in wild sea lamprey that have been fish health certified into our facility and getting them to parasitize hatchery reared lake trout has been very difficult. It has made us all think outside the box to make this project successful and has given us a new understanding into lake trout and sea lamprey interactions".



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AQUATIC  
INVASIVE  
SPECIES

It is estimated that 45-75% of lake trout survive a sea lamprey parasitism event. The sub-lethal physiological effects of sea lamprey parasitism on their hosts are likely to have significant population and management implications. Yet, it is currently unknown how fish respond to sub-lethal parasitism events or how these events alter growth, body condition or reproduction. Because of this gap in knowledge, it is likely that damage caused by sea lamprey parasitism on lake trout populations is being underestimated.



ing the data for this project for the third year at UWSP NADF. “Parasitism from sea lamprey has contributed significantly to the decline in lake trout populations in the Great Lakes,” Firkus states,

host’s tissues and body fluids. Though we account for the direct effects of sea lamprey parasitism on lake trout, we currently do not have a handle on how lake trout that survive parasitism are affected.”



Tyler Firkus, a Ph.D. Candidate from Michigan State University, has been gather-

“Adult sea lamprey attach to their hosts with a rasping mouthpart and feed on their

The project is utilizing an 11 year old broodstock of siscowet and lean lake trout morphotypes housed at UWSP NADF. The UWSP NADF is the only known facility in the world that has a captive mature brood stock of siscowet lake trout available for this study.



“There’s some evidence that the siscowet are more prone to parasitism from lamprey and they might actually be buffering the lean lake trout from parasitism,” Firkus states.



The facility also temporarily housed a group of sea lamprey’s to perform controlled, sub lethal parasitism on the lake trout. Sea lamprey were provided with the help from commercial fishermen in the Bayfield area and from the USGS Hammond Bay Biological Station in Michigan, which specializes in lamprey research.

Data has been recorded from fish pre and post-parasitism event to compare and determine the parasite’s effects on

fish that survive attacks. The data also included measuring reproductive levels and success before and after parasitism. “Our project has the potential to address this key missing information by monitoring lake trout growth, reproduction, and immune function for a year following sea lamprey parasitism. Preliminarily, we are finding evidence that parasitized lake trout produce fewer eggs and have reduced sperm concentrations. If we continue to find evidence of these effects, it may suggest a mechanism by which sea lamprey are sub-lethally altering lake trout populations and could have implications for how these populations are modeled.” Firkus states. This never before seen data will not only be used to assess how lake trout physiology is altered after a parasitism event, but also used to refine current physiological and bioenergetics models to better predict how sub-lethal Sea

Lamprey parasitism affects growth, reproduction, and population structure. The data from this project will be most important for understanding and preserving lake trout populations in the Great Lakes.



To learn more about the UWSP NADF projects, resources and further information please visit: [aquaculture.uwsp.edu](http://aquaculture.uwsp.edu)  
The facility also provides tours for all ages. Please contact Emma Wiermaa for scheduling: [ewiermaa@uwsp.edu](mailto:ewiermaa@uwsp.edu) or 715-779-3262.



## **Working together: Addressing invasive plants along the Brownstone Trail Bayfield Regional Conservancy, Erika Lang, Conservation Director**

Do you go to Bayfield often? Have you ever noticed the trail along Lake Superior that travels south from City limits towards Pike Creek's Bay? If you have, you have experienced the Brownstone Trail! The Brownstone Trail was created in 1996 by the Bayfield Regional Conservancy in partnership with over 20 private landowners and the City of Bayfield who own land right up to the trail on either side. Originally a railroad corridor, today it is a highly-utilized and scenic trail that local residents as well as tourists enjoy using for hiking, biking, snowshoeing, and other non-motorized recreational activities.

The Brownstone Trail meanders along the brownstone cliffs of Lake Superior's forested buffer. This area provides excellent habitat for wildlife, including migratory birds that use the forest habitats. These forest habitats also help maintain native fish and wildlife habitat, soil stability, and water quality so keeping them functioning is important! Unfortunately, as we all know, over the past couple of decades, invasive plants are becoming more common throughout the Bayfield area as well as NW Wisconsin. While some of these are more common species that have been in the area for many years, they have just recently started spreading into the more natural, undeveloped areas including places like the Brownstone Trail. While organizations are cooperatively addressing invasive plants on some publicly owned lands, many local governments and private landowners are not taking consistent action due to the lack of expertise, budgets, and other resources.

As the Bayfield Regional Conservancy stewarded the trail on an annual basis, we also began to notice the spread of invasive plants. And we were noticing another complicating factor – the cutting and/or removal of native trees and shrubs to make more view corridors. As a conservation organization that wants to set a good example and has experience, we decided to begin addressing these concerns in partnership with private landowners, the City of Bayfield, and funders when possible.

In 2015, we conducted an invasive plant inventory in these areas in cooperation with private landowners and City of Bayfield. Since then, we contact private landowners who live along the trail each year to provide them information about invasive plants and to talk about the importance of a healthy riparian buffer to Lake Superior. Through this contact, we also maintain their permission for us to coordinate treatment using Best Management Practices. Species targeted include Wisconsin NR40 Restricted species such as knotweed, garlic mustard, and leafy spurge; as well as common buckthorn, honeysuckle species, tansy, purple loosestrife and garden valerian. There is a little bit of everything on the Brownstone Trail! So far, the landowners have been very cooperative and grateful for the help, as many parcels are owned by absentee landowners. While we use an experienced pesticide applicator for the majority of the work, we do make a point to hold at least one volunteer event each year. Getting people out to work in nature helps build people's connectivity to and appreciation of the land and its natural resources. Recent volunteers have included landowners, residents who use the trail, Northland College students, and high school students through various organizations. We've received small grants through the Xcel Energy Foundation and Wisconsin Coastal Management to help us do this important work. We are slowly chipping away on addressing these invasive plants, and have also started restoration efforts using native plants in a few areas. But there is more work to be done, so stay tuned!





**"No child left  
on shore."**

**BAYFIELD  
COUNTY  
LAND & WATER  
CONSERVATION  
DEPARTMENT -  
AQUATIC  
INVASIVE  
SPECIES  
PROJECT**

# Lake Ecology Education Program



## Lake Namakagon HWM Discovery, Management



Lake Namakagon, Bayfield County, Wisconsin is one of the most highly-visited lakes in the county, possibly in northwest Wisconsin. Many bays and six boat landings make this 3200-acre lake favorable for activities ranging from pontoon cruises and jet skiing to snorkeling and tribal walleye spearing. You can imagine the community's concern when DNA testing confirmed the presence of hybrid watermilfoil (HWM) in Lakewoods Resort Marina at the end of June 2016. A formal plan of action could not be implemented before the July 11<sup>th</sup>, 2016 flood occurred, which hampered our efforts. A month passed before water levels decreased and infra-

structure was repaired sufficiently to resume activities.

Our first HWM hand pulling involved citizens and lakes professionals during August, and it received media coverage from the Ashland Daily Press. Monitoring via pontoon boat confirmed individual HWM plants near Paines Island. Professionals followed up using snorkel gear and pulled those plants. Two dozen hand pulling events, several types of surveys, and monthly Namakagon Lake Association meetings showed more action was needed. This resulted in a winter stakeholder meeting. The decision at this meeting was that Lakewoods Resort Marina would receive an herbicide treatment so we could get a handle on that HWM population. The WI DNR hired a contractor to use diquat, a contact-kill herbicide, for a spring treat-

ment almost immediately after ice out. The treatment was successful, and only a few plants have been found during visits after that. Cheryl Clemens of Harmony Environmental says, "Careful volunteer and professional monitoring will be a critical part of ongoing management to keep on top of any regrowth. Follow-up control measures will likely be needed."

Three Aquatic Plant Management Plan meetings in early 2018 determined the next steps to manage this HWM population. Harmony Environmental and the Namakagon Lake Association Board will soon submit the Plan to the WI DNR for review and approval.



## June

**1st-3rd:** Drain Campaign, statewide

**2nd:** Kids Fishing Day, Northern Great Lakes Visitor Center, 9 AM-1 PM

**7th:** Clean Boats Clean Waters Training, Barnes Town Hall, 2 PM

**8th:** Invasive Species ID Day, Northern Great Lakes Visitor Center, 1-4 PM

**22nd:** Northwest WI Lakes Conference, Spooner High School, 8 AM-3:45 PM

## July

**June 29th-July 4th:** Landing Blitz weekend, statewide

**9th-13th:** Zebra mussel veliger tows on Upper Eau Claire Lake and Lake Namakagon (just FYI, not an event)

**10th:** Northwoods Cooperative Weed Management Area meeting, Northern Great Lakes Visitor Center, 9 AM-12 PM

**12th:** GLRI Action Plan III Public Engagement Session, 6201 Congdon Boulevard, Duluth, MN— 6-8 PM

**13th:** Invasive Species ID Day, Northern Great Lakes Visitor Center, 1-4 PM

**26th-29th:** Iron River Lions Blueberry Festival

## August

**9th-12th:** Bayfield County Fair, Bayfield County Fairgrounds in Iron River- volunteers needed! Contact Andy Teal at Bayfield County Land & Water Conservation Department if you are interested.

**17th:** Invasive Species ID Day, Northern Great Lakes Visitor Center, 1-4 PM

**18th:** AIS Snapshot Day, statewide, local meeting spot TBD, 8:30 AM-1:30 PM

**29th:** Bayfield County Aquatic Invasive Species Committee meeting, Conference Room A, County Courthouse Building, 9 AM-11 AM and open to the public!



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Hello everyone! It has certainly been a busy year, and we could not have done it without you. I would like to thank the people who have dedicated countless hours of their time to invasive species management efforts. Those who have recently departed from certain program efforts include: **Bill Bussey, Mike Defoe, and Sarah Boles**, of the **County AIS Committee**; and **Dave Pease** who supported the **Town of Barnes AIS Committee** and, sadly, passed away. **We will miss all of you!**

Thank you to all of the volunteers, board members, partners, sponsors, grantors, and participants that continue to make our work possible!



<https://www.facebook.com/pages/Bayfield-County-AIS-Project/486473981401597?fref=ts>

## ID & Reporting tools:

### List of Waterbodies with Invasive Species:

<http://dnr.wi.gov/lakes/invasives/AISByWaterbody.aspx>

### Reporting New Sightings:

Great Lakes Early Detection Network -  
[www.ibis.colostate.edu/gledn/](http://www.ibis.colostate.edu/gledn/)

App available -  
<http://apps.bugwood.org/mobile/gledn.html>

### View Maps of Invasive Species Locations:

Great Lakes Indian Fish and Wildlife Commission -  
<http://maps.glifwc.org/>

### Learn About Lakes:

WI DNR Lakes Page - <http://dnr.wi.gov/lakes/lakepages/>  
(essentially the old yellow Lakes book now available online)

Get updates on lake happenings around the state  
<http://lakes-l.blogs.govdelivery.com/>

### Species Specific Info:

*Phragmites* - [www.greatlakesphragmites.net](http://www.greatlakesphragmites.net)

*Purple Loosestrife* - [http://www.seagrants.wisc.edu/ais/purpleloosestrife\\_info](http://www.seagrants.wisc.edu/ais/purpleloosestrife_info)

*Giant knotweed* - <https://dnr.wi.gov/topic/invasives/fact/giantknotweed.html>

*Japanese knotweed*—<https://dnr.wi.gov/topic/invasives/fact/japaneseknotweed.html>

*Eurasian Watermilfoil and Curly leaf Pondweed* -  
<http://dnr.wi.gov/topic/invasives/fact>

### Other Invasive Species:

WI DNR - <http://dnr.wi.gov/topic/invasives/>

WI Sea Grant - <http://www.seagrants.wisc.edu/home/Topics/InvasiveSpecies.aspx>

Control Options - <http://mipncontroldatabase.wisc.edu/>